Complementarity of different types of research infrastructure investigating regenerative soil management

Koen WILLEKENS
ILVO
BELGIUM

SESSION 8: LONG-TERM RESEARCH FOR AGROECOLOGY

#AEEUForum2023
DIFFERENT TYPES OF RESEARCH INFRASTRUCTURE

OVERVIEW

Field experiments at research institutes
- Multiyear multifactorial soil management experiments
- Multiyear experimenting with innovative cropping systems

Participatory research in a real-life settings
- Validation trials on individual farmers’ fields, testing individual soil management measures
- Multiple farmer’s fields monitoring for an extensive parameter set
  • System analysis, design and monitoring, e.g., HORIZON-project Agromix
  • Experimenting with innovative cropping systems
Crop rotation, crops and projects
Experimental fields G7-G10
(5.7 ha certified organic)

<table>
<thead>
<tr>
<th>Year</th>
<th>G7a</th>
<th>project</th>
<th>G7b</th>
<th>project</th>
<th>G8</th>
<th>project</th>
<th>G9-G10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>grass</td>
<td>clover</td>
<td>grass</td>
<td>clover</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>grass</td>
<td>clover</td>
<td>grass</td>
<td>clover</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>leek</td>
<td></td>
<td>Symbios</td>
<td></td>
<td>grass</td>
<td>clover</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>celeriac</td>
<td>Symbios</td>
<td></td>
<td></td>
<td>grass</td>
<td>clover</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>spring wheat</td>
<td></td>
<td></td>
<td></td>
<td>grass</td>
<td>clover</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>potatoes</td>
<td></td>
<td>Project out and carry fat</td>
<td></td>
<td>grass</td>
<td>clover</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>headed cabbage</td>
<td></td>
<td>Project cut and carry / control</td>
<td></td>
<td>grass</td>
<td>clover</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>headed cabbage</td>
<td>Soilveg</td>
<td>cover crop mixture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The diagram on the right side of the page shows the experimental fields G7-G10 labeled G7a, G7b, G8, G9, and G10.*
Multiyear multifactorial **soil management** test site@ILVO

First multiyear soil management field experiment@ILVO
Organically managed fields:

Two treatments
✔️ Farm compost - reduced tillage (non-inversion)
✔️ Farm yard manure – mouldboard ploughing
Organically managed field G7b

Factors
- Fertilization: Farm yard manure versus Farm yard manure co-composted with brown material versus no base fertilization
- Either removal (AFV, fodder production) or incorporation of the cover crop (BAU = Business as usual)

VLM-BIO project
HORIZON-project Soildiveragro
Organically managed arable cropping system, fields G9-G10
Grass-clover (2 years) – wheat – potatoes – maize x climbing bean - quinoa
4 blocks, 18 strips (3m width) per block
Each crop each year in 3 of 18 strips per block

Multiyear experimenting with **strip cropping system**@ILVO, 2023-…
Experimental Platform for Agroecology in Hansbeke

- Roller-Crimping + Direct drill of cereals in biomax
- Mixed cropping: legumes + cereals
- Grass-clover as temporary grassland
- Field margin strips
- Competitive cereals, old varieties or organically selected
System analysis, design and monitoring
Experimental Platform for Agroecology in Hansbeke
Experimenting with innovative cropping system
Growing cereals in a permanent cover of white clover
Experimental Platform for Agroecology in Hansbeke